

Aerospace Opportunities

Mike Rothlein, NORDAM


Chase Beasley, American Airlines

Kristye O'Mealey - STEM

Tonja Norwood, STEM



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Aerospace and Aviation

- Program Success Stories
- Career Pathways
- Curriculum
- Industry Job Outlook
- Resource Guide
- Toolkits

CLEAR FOR TAKEOFF

Get trained in Oklahoma Aerospace



Discover a career in aviation and aerospace

Home to aerospace pioneers such as Wiley Post and Clyde Cessna, Oklahoma has a rich legacy of aerospace innovation dating back more than a century. Today, Oklahoma continues to serve as a hub of aerospace innovation, as some of the world's most successful aerospace companies choose to run major operations in the state. Aerospace companies and organizations are looking for qualified personnel in every sector of the industry, including aircraft maintenance, unmanned aerial systems and general aviation. These videos highlight the value of aviation and aerospace training and the rewarding careers it can lead to. Enjoy!

Discover a
Career in
Aviation and
Aerospace

<https://oklahoma.gov/careertech/business-and-industry/aerospace-and-aviation.html>



Choose Aerospace

>Aviation Maintenance

- Clemson University, AAR, Aviation Technician Education Council (ATEC), and more
- Hybrid Approach
- 500 hours

>FAQ About Choose Aerospace

- Does not require FAA mechanic certification teacher
- No special equipment
- Supplies list provided
- Classroom with computers

<https://www.chooseaerospace.org/curriculum.html>



Choose Aerospace

>Aviation Showcase

- May 31
- American Airlines

>Teaching Training

- June 1-2
- Tulsa Tech

<https://www.chooseaerospace.org/teacher-training.html>

Courses and Codes

- 8884 Regulations and Ground Operations
- *8886 Applied Science of Aircraft Maintenance
- *8887 Aviation Electricity
- 8885 Aircraft Materials and Corrosion Control

General Aviation Maintenance 480 hours	Regulations and Ground Operations OCAS 8884 120 hours	Applied Sciences of Aircraft Maintenance OCAS 8886 120 hours	Aviation Electricity OCAS 8887 120 hours	Aircraft Materials and Corrosion Control OCAS 8885 120 hours
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* Oklahoma's Promise – Computer Technology

<https://www.chooseaerospace.org/curriculum.html>



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Counselor's Only Conference

Mike Rothlein

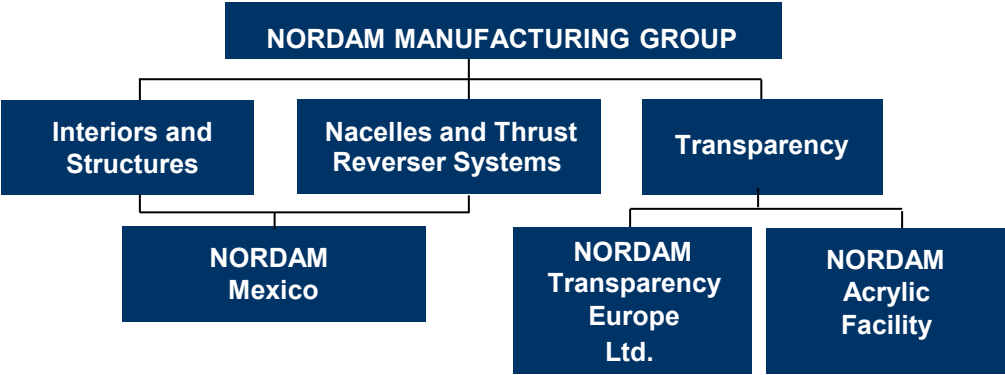
NORDAM
Director of Talent Management



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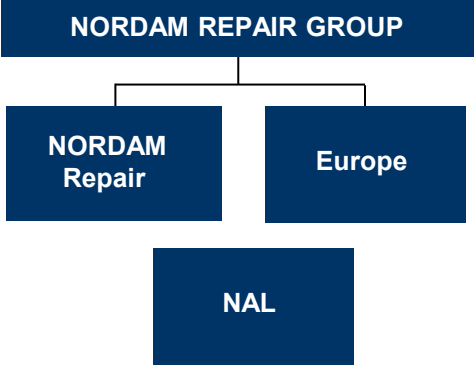
Manufacturing/OEM

Original Equipment Manufacturing



Aftermarket/MRO

Maintenance Repair Overhaul

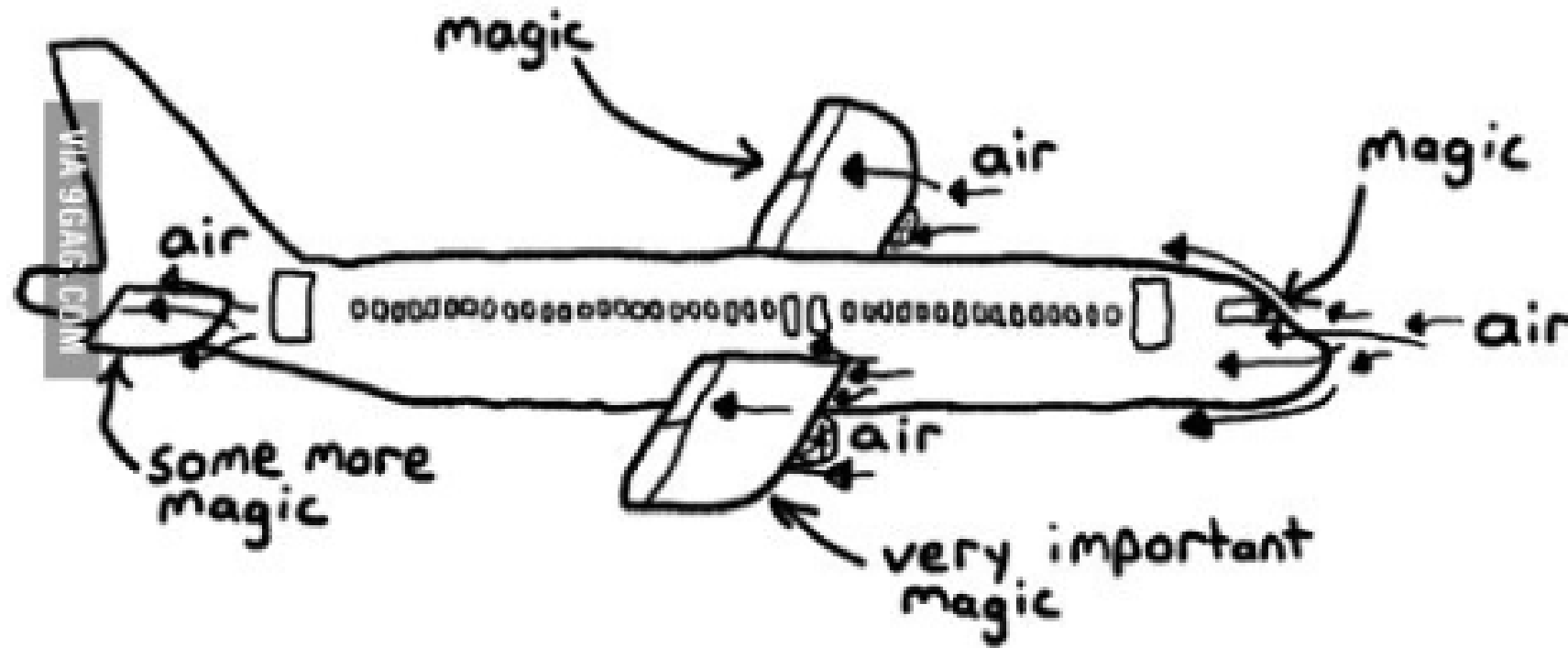


Tulsa • Mexico • Wales • Taiwan • United Kingdom

Multiple Divisions With Eight Facilities On Four Continents



What do we do?



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Aerospace has positions for all areas of interest...

- ✓ Building & Fixing Things
- ✓ Science & Math
- ✓ Art & Graphics
- ✓ Helping People
- ✓ Managing Money
- ✓ Computers



What are YOUR interests?

3 Paths to Take

1. Technical Trade School to earn 2-year degree or certification
2. On-the-job training straight out of high school
3. University to earn 4-year degree



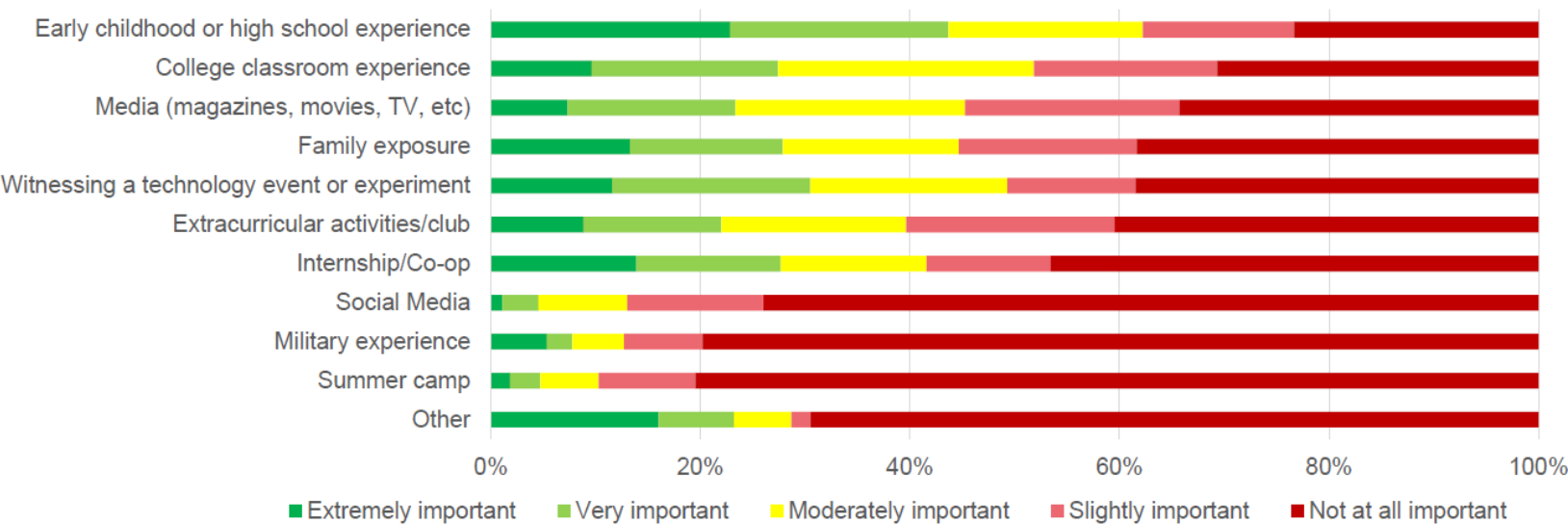
What NORDAM is looking for



Consistency
Reliability
Initiative
Innovation

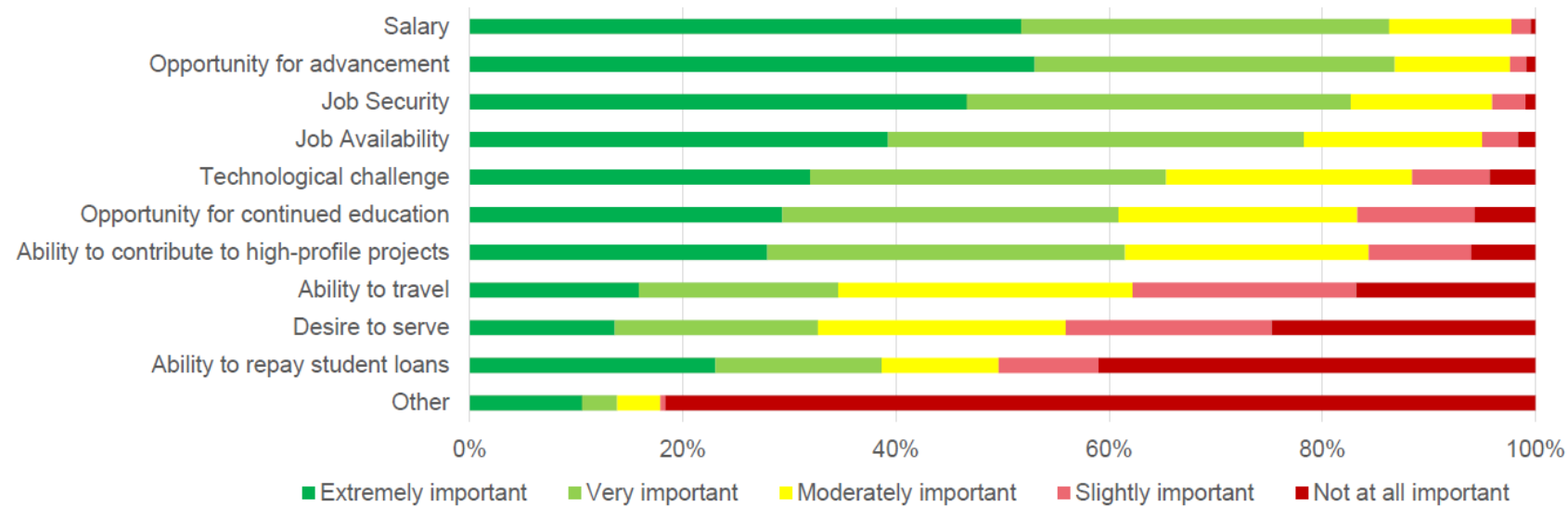
Influenced Interest in Aerospace, Defense, Space

- Among the experiences that sparked an interest in the industry, classroom exposure was ranked most important with witnessing a technology event or experiment also influential.



Important Factors in Determining Career Path

- Salary, advancement opportunities, and job security/availability were important factors in determining career path. Travel, desire to serve and ability to repay student loans were least important.



Allow Us to Partner...



- Tours
- Speaking
- Trainings
- Mock Interviews
- Class Projects

Mike Rothlein “Director of Talent Management”

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- (918) 401-5627





The NORDAM Culture Compass

Aircraft Owners Pilot Association

- Grades 9 -12
- Free Curriculum
- Pathways
 - ✓ Pilot – FAA Private Pilot knowledge test
 - ✓ UAS – FAA Part 107 certification



AOPA | YOU CAN FLY
HIGH SCHOOLS



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>AOPA

- Syllabi
- Standards

>Sequence of Course

- 8874 Aviation I
- *8875 Aviation II
- *8876 Aviation III – Pilot
- *8876 Aviation III - UAS
- **8705 STEM Capstone

***Oklahoma's Promise – Computer Technology**

**** Report Card Point**



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AOPA HIGH SCHOOL STEM CURRICULUM

[ABOUT](#)[WHAT'S INCLUDED](#)[COURSE DESCRIPTIONS](#)[REQUIREMENTS](#)[SELECTION CRITERIA](#)[FAQS](#)[APPLY NOW](#)[RENEW NOW](#)

<https://youcanfly.aopa.org/high-school/high-school-curriculum>



Sequence of Course

- 8874 Aviation I
- *8875 Aviation II
- *8876 Aviation III – Pilot
- *8876 Aviation III – UAS or 8877 Aviation IV
- 8883 Aerospace Capstone or 8705 STEM Capstone



AOPA | YOU CAN FLY
HIGH SCHOOLS

Pilot 480 hours	Aviation I OCAS 8874 120 hours Launching into Aviation Exploring Aviation & Aerospace	Aviation II OCAS 8875 120 hours Introduction to Flight Aircraft Systems	Aviation III - Pilot OCAS 8876 120 hours The Flying Environment Flight Planning	STEM Capstone OCAS 8705 120 hours Preflight Your Career Pilot Capstone
Unmanned Aircraft Systems 480 hours	Aviation I OCAS 8874 120 hours Launching into Aviation Exploring Aviation & Aerospace	Aviation II OCAS 8875 120 hours Introduction to Flight Aircraft Systems	Aviation III – UAS OCAS 8876 120 hours The Flying Environment UAS Operations	STEM Capstone OCAS 8705 120 hours UAS Design & Application UAS Capstone

<https://youcanfly.aopa.org/high-school/high-school-curriculum#faqs>



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American Airlines Tech Ops - Tulsa

Chase Beasley



Tech Ops – Tulsa at a Glance

American moved its maintenance operation from LaGuardia to Tulsa in 1946. Today, it's the world's largest commercial aviation maintenance base

- 3.3 million sq. ft. - 246 acres
- 22 buildings on main base

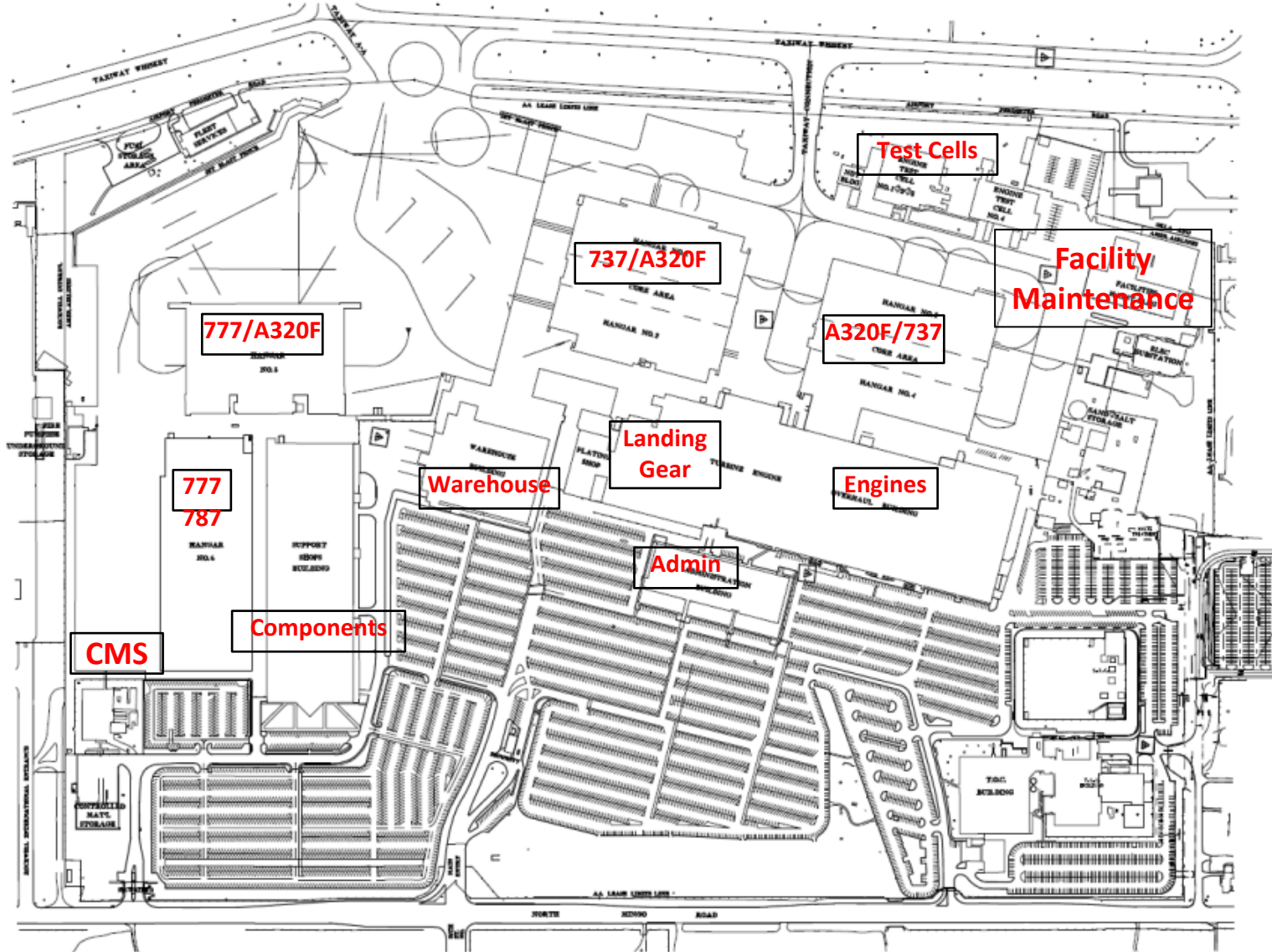


Composite Repair Center

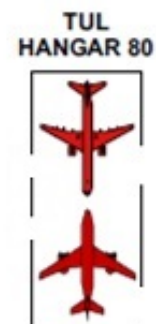
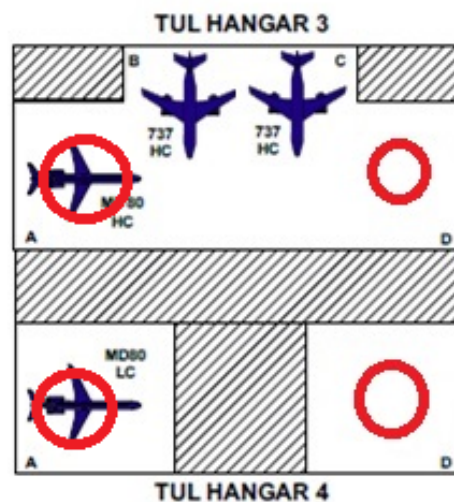
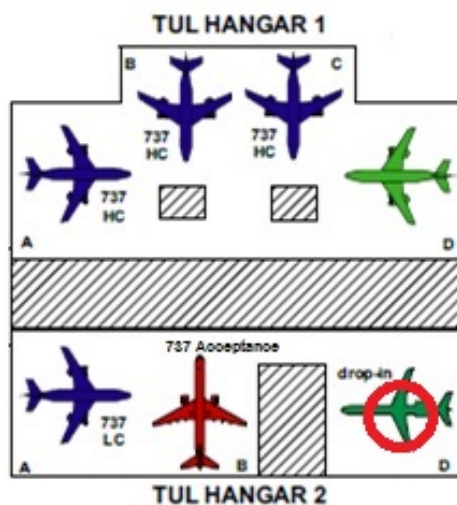
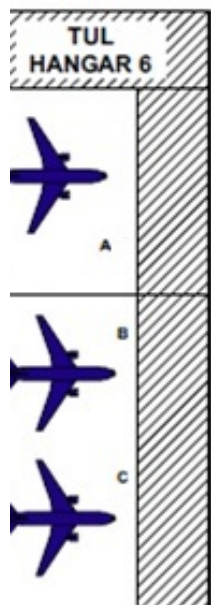
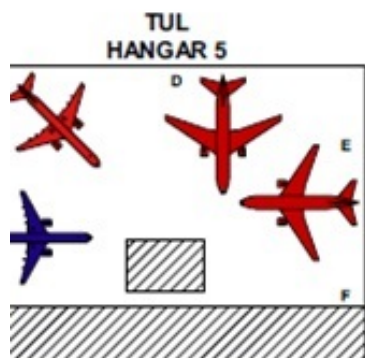


Wheel and Brake Center

Tech One - Tailor Event



American Airlines Base Maintenance



Current Dock Plan

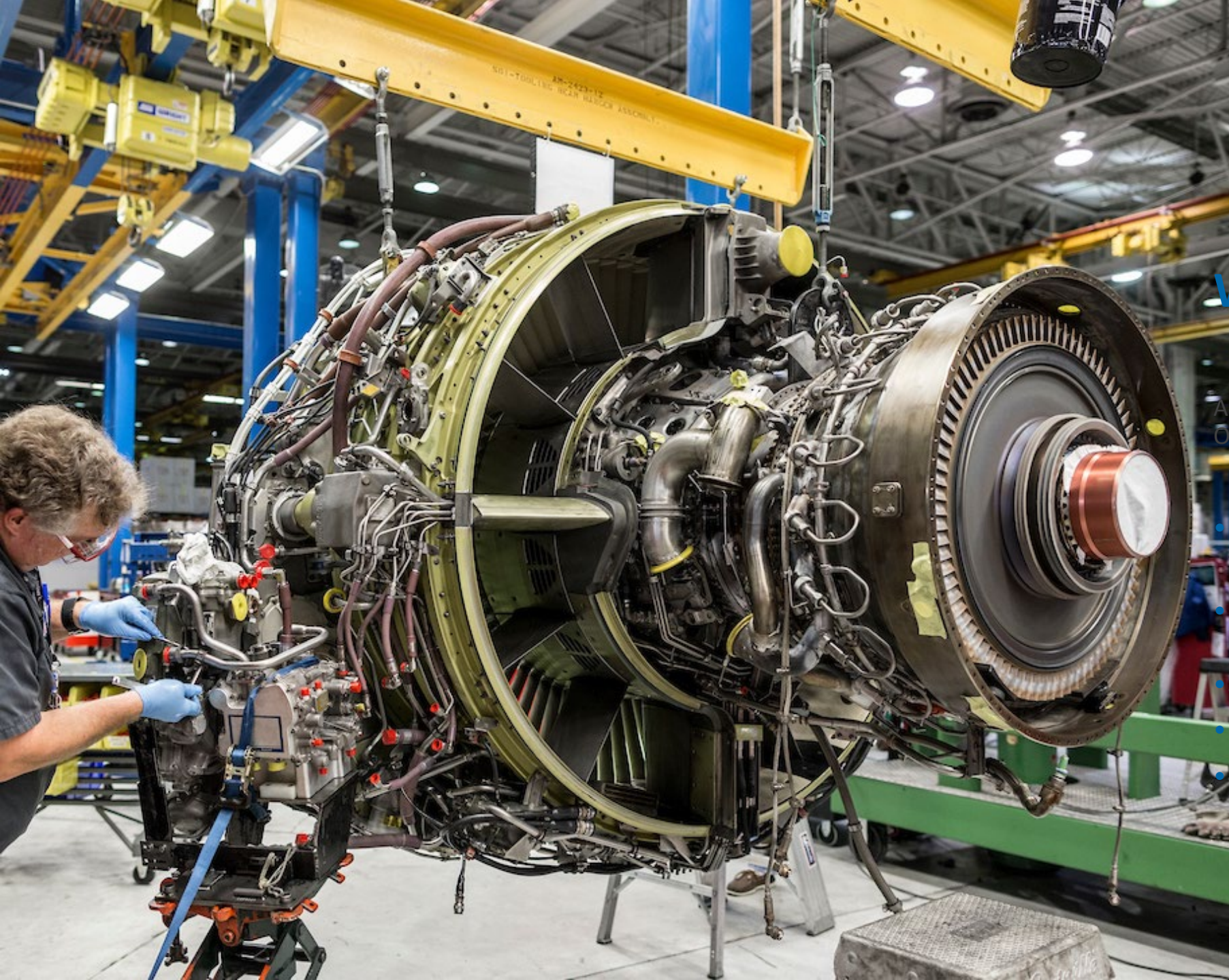


Work Performed

Heavy Maintenance – Aircraft Overhaul and Modifications



- More than 800+ aircraft visit the base annually
- Three Hangar Operations Center Complexes
- 20+ bays,
- 9 bays have widebody capability
- 1,500 employees
- Aircraft that visit include Boeing 737, 777, 787 and Airbus A319, A320, A321, A321neo



Work Performed

American Airlines Engine Repair and Overhaul - AAERO

- 2 Engine types
 - CFM56-7 (737); CFM56-5B (A320F)
- Light & Heavy Overhaul, Flyovers, Lease Return
- 300 engines annually
- 120,000 manufactured parts annually
- 130 mechanics

Work Performed

Component Overhaul and Repair (CRO)

- Avionics, Generators, Hydraulics
- Flight Controls, Thrust Reversers
- Seat Shop
- Lavs/Galleys
- 4 landing gear types
- Wheels, Brakes Composites
- 315,000 components annually
- 1,200 shop mechanics



Additional Work

> Engineering

- Interiors
- Powerplant
- Base Technical Support
- Avionics
- Structures
- 375 engineers & support staff

> Supply Chain

- Main Warehouse for legacy AA
- 445,000 outbound shipments per year
- 255,000 order receipts per year
- 400 Store Clerks
- 60 administrative/management

> Quality, Training & Ops Excellence

- Quality control and assurance
- Tech Ops training
- Lean, 5S, VPP
- 250 Quality Inspectors





Tulsa/Region Impact

- Over 70 years in Tulsa
- 1,800 team members
- 2,000+ jobs impacted in Tulsa region
- \$120M+ annual spend with Oklahoma vendors/suppliers
- \$620M+ annual wages
- Average AA Tulsa team member wage \$120,300*

*includes salary and benefits

Questions?



Photo taken in American Airlines Propeller Shop, located in Hangar 3&4 – 1947

StellarXplorers

<https://stellarxplorers.org/>



<https://www.youtube.com/watch?v=73jaLPliEqg>



ROUND 1

Practice (PR1) | October 13-16, 2022 ★
Qualification (QR1) | October 27-30, 2022

ROUND 2

Practice (PR2) | November 17-20, 2022
Qualification (QR2) | December 8-11, 2022 ★

ROUND 3

Practice (PR3) | January 12-15, 2023
Qualification (QR3) | January 26-29, 2023

SEMIFINALS

February 16-19, 2023

NATIONAL FINALS

April 20-22, 2023
*(In-Person Event - Held in Houston, TX.
Teams travel on 4/19 and 4/23)*



Important Dates & Deadlines

Team Registration Opens | May 4, 2022
Team Registration Closes | October 17, 2022
Roster Finalization | October 26, 2022
Payment Due | November 15, 2022



StellarXplorers

<https://stellarxplorers.org/>



>8870 Space Engineering Concepts

- Oklahoma Promise Computer Technology
- STK – Free to educators
- Free online video and text tutorials



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CareerTech Program Funding

>Yearly

- Program Assistance (412)
- Teacher Supplement (411)



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STEM Science, Technology, Engineering & Mathematics
TSA student organization

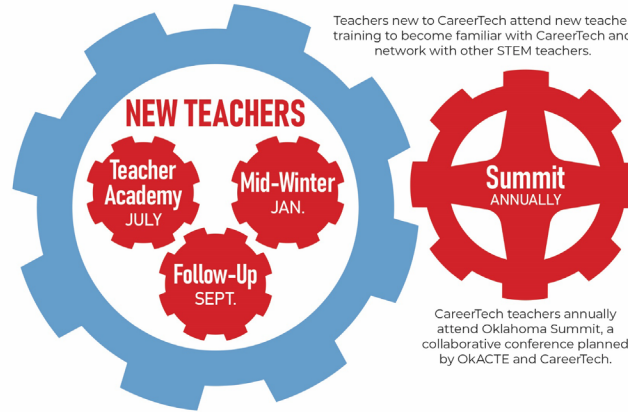
Program Requirements



CAREERTECH STUDENT ORGANIZATIONS

All CareerTech teachers must have an active CareerTech Student Organization. TSA is the student organization that aligns to STEM.

PROFESSIONAL DEVELOPMENT



Teachers new to CareerTech attend new teacher training to become familiar with CareerTech and network with other STEM teachers.

CareerTech teachers annually attend Oklahoma Summit, a collaborative conference planned by OkACTE and CareerTech.

STEM COURSES

CareerTech STEM programs teach STEM-approved courses and schools report all courses using 8000 level codes.



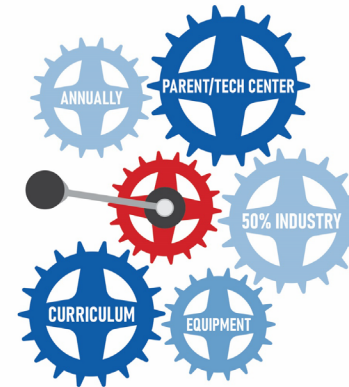
REPORTS

- 412 funding STEM 315
- Salary and schedule September
- CESI Student enrollment, October
- Student completion Seniors follow-up, November
- OCAS codes 8000
- CTIMS <https://ctims.okcareertech.org/CTBDSWeb/>



FUNDING

- STEM Program 412 annual funding Equipment, supplies, professional development
- STEM Teacher 411 annual stipend
- Lottery grants Receive every other year
- Innovative grants Opens every two years



ADVISORY COMMITTEE

CareerTech Programs must hold at least one advisory committee meeting each year. The committee should help with curriculum and equipment decisions.



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TSA - Technology Student Association



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STEM Science, Technology, Engineering and Mathematics
TSA - Technology Student Association

Questions?

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